

Search Plan and Results

Question

[Is intake of dietary fiber related to adiposity in children? \(DGAC 2010\)](#)

Date Searched

10/2009

Inclusion Criteria

- Publication date January 1, 1980 to October 2009
- English language
- Human subjects
- Children (zero to 18 years)
- Included at least one outcome measure of adiposity (e.g., body weight, body mass index, skinfolds, percent body fat).

Exclusion Criteria

- Conducted in developed countries
- Published in journals that are not peer-reviewed
- Included no measure of adiposity (e.g., body weight, body mass index, skinfolds, percent body fat)
- Involved exclusively children less than two years old or adolescents over 18 years old
- Treatment trial conducted for less than eight weeks (not including duration of follow-up)
- Prevention trial conducted for less than six months (not including duration of follow-up)
- Treatment trial involved fewer than 10 subjects total (or fewer than 10 in the intervention group)
- Prevention trial involved fewer than 60 subjects total (or fewer than 30 in the intervention group)
- Treatment trials involving pharmacological interventions (because of lack of research in these areas)
- Cross-sectional studies.

Search Terms: Search Vocabulary

("Body Weights and Measures"[Mesh] OR "Body Mass Index"[Mesh] OR "Adiposity"[mh] OR "Overweight"[mh] OR "Obesity"[mh] OR "Weight Gain"[mh]) AND "Dietary Fiber"[Mesh]

("weight" OR obesity OR adiposity OR overweight OR BMI OR "body mass" OR waist)
AND (fiber OR fibre) AND (children OR adolescent* OR child OR childhood) AND
((publisher[sb] NOT pubstatusnihms NOT pubstatuspmcsd) OR
pubstatusaheadofprint)

Electronic Databases

Pubmed

Total hits from all electronic database searches: 160

Total articles identified to review from electronic databases: 52

Articles Identified Via Handsearch or Other Means

Articles identified via hand search: 1

Summary of Articles Identified to Review

Number of Primary Articles Identified: 6

Number of Review Articles Identified: 0

Total Number of Articles Identified: 6

Number of Articles Reviewed but Excluded: 47

List of Articles Included for Evidence Analysis

Berkey CS, Rockett HR, Field AE, Gillman MW, Frazier AL, Camargo CA Jr, Colditz GA. [Activity, dietary intake and weight changes in a longitudinal study of preadolescent and adolescent boys and girls.](#) *Pediatrics*. 2000 Apr; 105(4): E56.

Cheng G, Karaolis-Danckert N, Libuda L, Bolzenius K, Remer T, Buyken AE. [Relation of dietary glycemic index, glycemic load, and fiber and whole-grain intakes during puberty to the concurrent development of percent body fat and body mass index.](#) *Am J Epidemiol.* 2009 Mar 15; 169 (6): 667-677.

Davis JN, Alexander KE, Ventura EE, Toledo-Corral CM, Goran MI. [Inverse relation between dietary fiber intake and visceral adiposity in overweight Latino youth.](#) *Am J Clin Nutr.* 2009; 90: 1, 160-1, 166. (Hand search)

Newby PK, Peterson KE, Berkey CS, Leppert J, Willett WC, Colditz GA. [Dietary composition and weight change among low-income preschool children.](#) *Arch Pediatr Adolesc Med.* 2003 Aug; 157 (8): 759-764.

Ventura E, Davis J, Byrd-Williams C, Alexander K, McClain A, Lane CJ, Spruijt-Metz D, Weigensberg M, Goran M. [Reduction in risk factors for type 2 diabetes mellitus in response to a low-sugar, high-fiber dietary intervention in overweight Latino adolescents](#). *Arch Pediatr Adolesc Med.* 2009 Apr; 163 (4): 320-327. PMID: 19349560.

Vido L, Facchin P, Antonello I, Gobber D, Rigon F. [Childhood obesity treatment: double blinded trial on dietary fibers \(glucomannan\) vs. placebo](#). *Padiatr Padol.* 1993; 28 (5): 133-136.

List of Excluded Articles with Reason

Article (A-K)	Reason for Exclusion
Adamidis D, Roma-Giannikou E, Karamolegou K, Tselalidou E, Constantopoulos A. Fiber intake and childhood appendicitis . <i>Int J Food Sci Nutr.</i> 2000 May; 51 (3):153-157. PMID: 10945110.	Does not answer the question; examined the relationship between fiber and acute appendicitis.
Affenito SG, Thompson DR, Barton BA, Franko DL, Daniels SR, Obarzanek E, Schreiber GB, Striegel-Moore RH. Breakfast consumption by African-American and white adolescent girls correlates positively with calcium and fiber intake and negatively with body mass index . <i>J Am Diet Assoc.</i> 2005 Jun; 105 (6): 938-945. PMID: 15942545.	Does not answer the question; examined the relationship between breakfast eating and body mass index (BMI).
Albertson AM, Affenito SG, Bauserman R, Holschuh NM, Eldridge AL, Barton BA. The relationship of ready-to-eat cereal consumption to nutrient intake, blood lipids and body mass index of children as they age through adolescence . <i>J Am Diet Assoc.</i> 2009 Sep; 109 (9): 1, 557-1, 565. PMID: 19699835.	Does not answer the question; examined the relationship between breakfast eating and BMI.
Aller R, de Luis DA, Izaola O, La Calle F, del Olmo L, Fernandez L, Arranz T, Hernandez JM. Effect of soluble fiber intake in lipid and glucose levels in healthy subjects: A randomized clinical trial . <i>Diabetes Res Clin Pract.</i> 2004 Jul; 65 (1): 7-11. PMID: 15163472.	Subjects studied were adults.
Astrup A, Vrist E, Quaade F. Dietary fibre added to very low calorie diet reduces hunger and alleviates constipation . <i>Int J Obes.</i> 1990 Feb; 14 (2): 105-112. PMID: 2160441.	Subjects studied were adults.
Baric IC, Cvjetic S, Satalic Z. Dietary intakes among Croatian schoolchildren and adolescents . <i>Nutr Health.</i> 2001;15 (2): 127-138. PMID: 11694069.	Study population not from a developed country as defined by the Human Development Index.

<p>Barton BA, Eldridge AL, Thompson D, Affenito SG, Striegel-Moore RH, Franko DL, Albertson AM, Crockett SJ. The relationship of breakfast and cereal consumption to nutrient intake and body mass index: The National Heart, Lung and Blood Institute Growth and Health Study. <i>J Am Diet Assoc.</i> 2005 Sep; 105 (9): 1, 383-1, 389. PMID: 16129079.</p>	<p>Does not answer the question; examined the relationship between breakfast eating and BMI.</p>
<p>Biltoft-Jensen A, Fagt S, Groth MV, Matthiessen J, Wachmann HC, Christensen T. The intake of saturated fat and dietary fibre: A possible indicator of diet quality. <i>Br J Nutr.</i> 2008 Sep; 100 (3): 624-632. Epub 2008 Jan 21. PMID:18205993.</p>	<p>Study did not include adiposity as a measured outcome.</p>
<p>Birketvedt GS, Aaseth J, Florholmen JR, Ryttig K. Long-term effect of fibre supplement and reduced energy intake on body weight and blood lipids in overweight subjects. <i>Acta Medica (Hradec Kralove)</i>. 2000; 43 (4): 129-132. PMID: 11294130.</p>	<p>Study subjects are adults.</p>
<p>Chow J, Choe YS, Noss MJ, Robinson KJ, Dugle JE, Acosta SH, Garleb KA. Effect of a viscous fiber-containing nutrition bar on satiety of patients with type 2 diabetes. <i>Diabetes Res Clin Pract.</i> 2007 Jun; 76 (3): 335-340. Epub 2006 Oct 4. PMID: 17023088.</p>	<p>Does not answer the question; examined the relationship between fiber and satiety.</p>
<p>Colín-Ramírez E, Castillo-Martínez L, Orea-Tejeda A, Villa Romero AR, Vergara Castañeda A, Asensio Lafuente E. Waist circumference and fat intake are associated with high blood pressure in Mexican children aged eight to 10 years. <i>J Am Diet Assoc.</i> 2009 Jun; 109(6): 996-1, 003. PMID: 19465181.</p>	<p>Study population not from a developed country as defined by the Human Development Index</p>
<p>de Carvalho EB, Vitolo MR, Gama CM, Lopez FA, Taddei JA, de Moraes MB. Fiber intake, constipation and overweight among adolescents living in Sao Paulo City. 2006 Jul-Aug; 22 (7-8): 744-749. PMID: 16815488.</p>	<p>Study population not from a developed country as defined by the Human Development Index.</p>
<p>Dwyer JT. Dietary fiber for children: How much? <i>Pediatrics.</i> 1995 Nov; 96 (5 Pt 2): 1, 019-1, 022. PMID: 7494674.</p>	<p>Study is a narrative review.</p>
<p>Farris RP, Cresanta JL, Frank GC, Webber LS, Berenson GS. Dietary studies of children from a biracial population: Intakes of carbohydrate and fiber in 10- and 13-year-olds. <i>J Am Coll Nutr.</i> 1985; 4 (4): 421-435. PMID: 2995472.</p>	<p>Study did not include adiposity as a measured outcome.</p>

<p>Fehily AM, Burr ML, Butland BK, Eastham RD. A randomised controlled trial to investigate the effect of a high fibre diet on blood pressure and plasma fibrinogen. 1986 Dec; 40 (4): 334-337. PMID: 2821151; PubMed Central PMCID: PMC1052556.</p>	<p>Study subjects are adults.</p>
<p>Flood-Obbagy JE, Rolls BJ. The effect of fruit in different forms on energy intake and satiety at a meal. <i>Appetite</i>. 2009 Apr; 52 (2): 416-422. Epub 2008 Dec 6. PMID: 19110020; PMCID: PMC2664987.</p>	<p>Study subjects are adults.</p>
<p>Gibson SA. Are high-fat, high-sugar foods and diets conducive to obesity? <i>Int J Food Sci Nutr</i>. 1996 Sep; 47 (5): 405-15. PMID: 8889626.</p>	<p>Did not answer the question; did not examine the relationship between fiber and adiposity.</p>
<p>Gropper SS, Acosta PB. The therapeutic effect of fiber in treating obesity. <i>J Am Coll Nutr</i>. 1987 Dec; 6 (6): 533-535. PMID: 2826563.</p>	<p>Sample size less than the inclusion criteria.</p>
<p>Guillaume M, Lapidus L, Lambert A. Obesity and nutrition in children. The Belgian Luxembourg Child Study IV. The Belgian Luxembourg Child Study IV. <i>Eur J Clin Nutr</i>. 1998 May; 52 (5): 323-328. PMID: 9630381.</p>	<p>Study design is cross-sectional.</p>
<p>Hanley AJ, Harris SB, Gittelsohn J, Wolever TM, Saksvig B, Zinman B. Overweight among children and adolescents in a Native Canadian community: Prevalence and associated factors. <i>Am J Clin Nutr</i>. 2000 Mar; 71 (3): 693-700. PMID: 10702161.</p>	<p>Did not answer the question; did not examine the relationship between fiber and adiposity.</p>
<p>Hardy CM, Rockney R. The role of fiber in the diets of children. <i>Med Health R</i> 2000 Nov; 83 (11): 348-351. PMID: 11107766.</p>	<p>Study is a narrative review that does not answer the question.</p>
<p>Harland JI, Garton LE. Whole-grain intake as a marker of healthy body weight and adiposity. <i>Public Health Nutr</i>. 2008 Jun; 11 (6): 554-563. Epub 2007 Nov 16. PMID: 18005489.</p>	<p>Did not answer the question; did not examine the relationship between fiber and adiposity.</p>
<p>He J, Klag MJ, Whelton PK, Mo JP, Chen JY, Qian MC, Mo PS, He GQ. Oats and buckwheat intakes and cardiovascular disease risk factors in an ethnic minority of China. 1995 Feb; 61 (2): 366-372. PMID: 7840076.</p>	<p>Study population not from a developed country as defined by the Human Development Index.</p>
<p>Henry CJ, Lightowler HJ, Strik CM. Effects of long-term intervention with low- and high-glycemic-index breakfasts on food intake in children aged eight to 11 years. <i>Br J Nutr</i>. 2007 Sep; 98 (3): 636-640. Epub 2007 Apr 23. PMID: 17451613.</p>	<p>Did not answer the question; did not examine the relationship between fiber and adiposity.</p>

<p>Humeníkova L, Gates GE. Dietary intakes, physical activity, and predictors of child obesity among 4-6th graders in the Czech Republic. <i>Cent Eur J Public Health</i>. 2007 Mar; 15 (1): 23-28. PMID: 17491555.</p>	<p>Study design is cross-sectional.</p>
<p>Johnson L, Mander AP, Jones LR, Emmett PM, Jebb SA. Energy-dense, low-fiber, high-fat dietary pattern is associated with increased fatness in childhood. <i>Am J Clin Nutr</i>. 2008 Apr; 87 (4): 846-854. PMID: 18400706.</p>	<p>Did not answer the question; did not examine the relationship between fiber and adiposity.</p>
<p>Kristal AR, Curry SJ, Shattuck AL, Feng Z, Li S. A randomized trial of a tailored, self-help dietary intervention: The Puget Sound Eating Patterns study. <i>Prev Med</i>. 2000 Oct; 31 (4): 380-389. PMID: 11006063.</p>	<p>Study subjects are adults.</p>

Article (L-S)	Reason for Exclusion
<p>Langevin DD, Kwiatkowski C, McKay MG, Maillet JO, Touger-Decker R, Smith JK, Perlman A. Evaluation of diet quality and weight status of children from a low socioeconomic urban environment supports "at risk" classification. <i>J Am Diet Assoc</i>. 2007 Nov; 107 (11): 1, 973-1, 977. PMID: 17964318.</p>	<p>Did not answer the question; did not examine the relationship between fiber and adiposity.</p>
<p>Lee SK, Novotny R, Daida YG, Vijayadева V, Gittelsohn J. Dietary patterns of adolescent girls in Hawaii over a two-year period. <i>J Am Diet Assoc</i>. 2007 Jun; 107 (6): 956-961. PMID: 17524716.</p>	<p>Did not answer the question; did not examine the relationship between fiber and adiposity.</p>
<p>Lee WT, Ip KS, Chan JS, Lui NW, Young BW. Increased prevalence of constipation in pre-school children is attributable to under-consumption of plant foods: A community-based study. <i>J Paediatr Child Health</i>. 2008 Apr; 44 (4): 170-175. Epub 2007 Sep 14. PMID: 17854410.</p>	<p>Did not answer the question; did not examine the relationship between fiber and adiposity.</p>
<p>Lylly M, Liukkonen KH, Salmenkallio-Marttila M, Karhunen L, Poutanen K, Lähteenmäki L. Fibre in beverages can enhance perceived satiety. <i>Eur J Nutr</i>. 2009 Jun; 48 (4): 251-258. Epub 2009 Mar 21. PMID: 19306033.</p>	<p>Did not answer the question; did not examine the relationship between fiber and adiposity.</p>
<p>Mattes RD. Effects of a combination fiber system on appetite and energy intake in overweight humans. <i>Physiol Behav</i>. 2007 Apr 23; 90 (5): 705-711. Epub 2007 Jan 3. PMID: 17292929.</p>	<p>Did not answer the question; did not examine the relationship between fiber and adiposity.</p>

<p>Molnár D, Dóber I, Soltész G. The effect of unprocessed wheat bran on blood glucose and plasma immunoreactive insulin levels during oral glucose tolerance test in obese children. <i>Acta Paediatr Hung.</i> 1985; 26 (1): 75-77. PMID: 2985100.</p>	<p>Did not answer the question; did not examine the relationship between fiber and adiposity.</p>
<p>Overby NC, Flaaten V, Veierød MB, Bergstad I, Margeirsdottir HD, Dahl-Jørgensen K, Andersen LF. Children and adolescents with type 1 diabetes eat a more atherosclerosis-prone diet than healthy control subjects. <i>Diabetologia</i>. 2007 Feb; 50 (2): 307-316. Epub 2006 Nov 29. PMID: 17136391.</p>	<p>Did not answer the question; did not examine the relationship between fiber and adiposity.</p>
<p>Peña M, Bacallao J, Barta L, Amador M, Johnston FE. Fiber and exercise in the treatment of obese adolescents. <i>J Adolesc Health Care</i>. 1989 Jan; 10 (1): 30-34. PMID: 2537809.</p>	<p>Study population not from a developed country as defined by the Human Development Index.</p>
<p>Rave K, Roggen K, Dellweg S, Heise T, tom Dieck H. Improvement of insulin resistance after diet with a whole-grain based dietary product: Results of a randomized, controlled cross-over study in obese subjects with elevated fasting blood glucose. <i>Br J Nutr.</i> 2007 Nov; 98 (5): 929-936. Epub 2007 Jun 12. PMID: 17562226.</p>	<p>Study population not from a developed country as defined by the Human Development Index.</p>
<p>Ryttig KR, Tellnes G, Haegh L, Bøe E, Fagerthun H. A dietary fibre supplement and weight maintenance after weight reduction: A randomized, double-blind, placebo-controlled long-term trial. <i>Int J Obes.</i> 1989;13 (2): 165-171. PMID: 2545640.</p>	<p>Study subjects are adults.</p>
<p>Schenkel TC, Stockman NK, Brown JN, Duncan AM. Evaluation of energy, nutrient and dietary fiber intakes of adolescent males. <i>J Am Coll Nutr.</i> 2007 Jun; 26 (3): 264-271. PMID: 17634172.</p>	<p>Study design is cross-sectional.</p>
<p>Schulz M, Nöthlings U, Hoffmann K, Bergmann MM, Boeing H. Identification of a food pattern characterized by high-fiber and low-fat food choices associated with low prospective weight change in the EPIC-Potsdam cohort. <i>J Nutr.</i> 2005 May;135(5): 1, 183-1, 189. PMID: 15867301.</p>	<p>Study subjects are adults.</p>
<p>Spruijt-Metz D, Belcher B, Anderson D, Lane CJ, Chou CP, Salter-Venzon D, Davis JN, Hsu YW, Neuhouser ML, Richey JM, McKenzie TL, McClain A, Goran MI, Weigensberg MJ. A high-sugar/low-fiber meal compared with a low-sugar/high-fiber meal leads to higher leptin and physical activity levels in overweight Latina females. <i>J Am Diet Assoc.</i> 2009 Jun;109(6): 1, 058-1, 063. PubMed PMID: 19465188.</p>	<p>Did not answer the question; did not examine the relationship between fiber and adiposity.</p>

<p>Steffen LM, Jacobs DR Jr, Murtough MA, Moran A, Steinberger J, Hong CP, Sinaiko AR. Whole grain intake is associated with lower body mass and greater insulin sensitivity among adolescents. <i>Am J Epidemiol.</i> 2003 Aug 1;158 (3): 243-250. PMID: 12882946.</p>	<p>Did not answer the question; did not examine the relationship between fiber and adiposity.</p>
<p>Stephen AM, Wiggins HS, Englyst HN, Cole TJ, Wayman BJ, Cummings JH. The effect of age, sex and level of intake of dietary fibre from wheat on large-bowel function in 30 healthy subjects. <i>Br J Nutr.</i> 1986 Sep; 56 (2): 349-361. PMID: 2823871.</p>	<p>Study subjects are adults.</p>

Article (T-Z)	Reason for Exclusion
<p>Tuyet Mai T, Kim Hung N, Kawakami M, Nguyen VC. Macronutrient intake and nutritional status of primary school-aged girls in rural and urban areas of South Vietnam. <i>J Nutr Sci Vitaminol (Tokyo)</i>. 2003 Feb; 49 (1): 13-20. PMID: 12882391.</p>	<p>Study population not from a developed country as defined by the Human Development Index.</p>
<p>Ventura EE, Davis JN, Alexander KE, Shaibi GQ, Lee W, Byrd-Williams CE, Toledo-Corral CM, Lane CJ, Kelly LA, Weigensberg MJ, Goran MI. Dietary intake and the metabolic syndrome in overweight Latino children. <i>J Am Diet Assoc.</i> 2008 Aug; 108 (8): 1, 355-1, 359. PMID: 18656576.</p>	<p>Did not answer the question; did not examine the relationship between fiber and adiposity.</p>
<p>Vitolo MR, Campagnolo PD, Gama CM. Factors associated with risk of low dietary fiber intake in adolescents. <i>J Pediatr (Rio J)</i>. 2007 Jan-Feb; 83 (1): 47-52. Epub 2007 Jan 23. PMID: 17279285.</p>	<p>Study population not from a developed country as defined by the Human Development Index.</p>
<p>Warren JM, Henry CJ, Simonite V. Low glycemic index breakfasts and reduced food intake in pre-adolescent children. <i>Pediatrics</i>. 2003 Nov; 112 (5): e414. PMID: 14595085.</p>	<p>Did not answer the question; did not examine the relationship between fiber and adiposity.</p>
<p>Williams CL, Bollella MC, Strobino BA, Boccia L, Campanaro L. Plant stanol ester and bran fiber in childhood: Effects on lipids, stool weight and stool frequency in preschool children. <i>J Am Coll Nutr.</i> 1999 Dec; 18 (6): 572-581. PMID: 10613408.</p>	<p>Did not answer the question; did not examine the relationship between fiber and adiposity.</p>